DOCUMENT RESUME

ED 290 755 SP 029 890

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TITLE Teaching Interactive Decisionmaking Skills to Preservice Teachers.
PUB DATE Feb 88
NOTE 9p.; Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education (New Orleans, LA, February 17-20, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Communication Research; *Decision Making Skills; Higher Education; Interpersonal Relationship; Preservice Teacher Education; *Student Teachers; *Teacher Behavior; *Teacher Effectiveness; *Training Methods
IDENTIFIERS *Interactive Decisionmaking

ABSTRACT

A report is given of a program that was developed to train student teachers in how to make effective decisions while they are engaged in the act of teaching. This type of thinking has been labeled "interactive decisionmaking" (IDM). As a result of the training, the beginning teachers were expected to make improvements in their classroom decisions. The objectives of the training were to improve skills in: (1) making classroom decisions based on present observed student behavior; (2) considering and implementing more instructional alternatives when conducting lessons; and (3) improving their decisions in overall quality and appropriateness. A description is given of the procedures followed in the IDM training program, involving eight student teachers in the second semesters of a professional teacher training program and eight novice teachers at the beginning of the same program. Results of the training program indicated that while some aspects of decision making were affected positively, the general quality of classroom interactions was not significantly enhanced. Suggestions are made for future research. (JD)

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TEACHING INTERACTIVE DECISIONMAKING SKILLS TO PRESERVICE TEACHERS

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TEACHING INTERACTIVE DECISIONMAKING SKILLS TO PRESERVICE TEACHERS

Presented at the 1988 AACTE Annual Meeting
New Orleans, Louisiana
February 17 - 20, 1988

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Effective teaching requires teachers to apply their knowledge and instructional skills at appropriate times in the classroom. That is, teachers must continually make decisions about the intervention they will make to affect student learning while the lesson is in progress. This type of "on your feet" thinking, which may be one of the most critical skills in effective teaching (Shavelson, 1973), has been labeled interactive decisionmaking (IDM). It refers to decisions like determining whether or not to probe for a correct response or deciding how to build up sagging interest in the lesson. Although teacher training programs typically teach preservice teachers how to plan lessons and help them develop intervention skills, they rarely assess or teach IDM strategies that can be practiced in the live classroom.

Most research on IDM has been concerned with identifying the bases on which teachers do, in fact, make their decisions. The data gathered thus far seems to indicate that interactive decisions are grounded in the teacher's image of the planned learning activity (Parker & Gehrke, 1986). Deliberate decisions usually are made when student behavior deviates from that image (Peterson & Clark, 1978). Actions taken by the teacher generally are oriented toward maintaining the flow of the lesson according to plan and bringing the lesson to a closure within a pre-set time frame (Parker & Gehrke, 1986). Interestingly, responses to students often are not based upon present behavior. Rather, evidence suggests that teachers' decisions are responses to prior information about students and expected behavior (Shavelson, 1983).

The research referred to above has been conducted with experienced classroom teachers. Little study has been made, however, of IDM among preservice teachers. One investigation of IDM that did include novice teachers indicated that novices, as one might expect, did not generate instructional alternatives as well as experienced teachers (Fogarty, Wang, & Creek, 1983). Nevertheless, both groups of teachers were equally able to recognize the places in instruction where modification was needed. Evidently, and not counter to what one might logically expect, IDM skills for most teachers are acquired (subconsciously) through years of experience. Yet, since IDM is a critical skill for effective teaching, it should also be included in programs for teacher training where it can be extensively practiced.

Training in IDM for preservice teachers has not been widely reported. Although successful training of experienced teachers has been carried out by Parker (1984), the methods used--guided reflection and role-taking-- do not appear to be appropriate with novices. Beginning teachers probably do not have the experiential base necessary for assuming a wide variety of teaching situations. Therefore, the identification of effective decisionmaking strategies and the

development of IDM training procedures suitable for preservice teachers appear to be needed.

The present study reports an attempt to train student teachers how to make effective decisions while they are engaged in the act of teaching. As a result of the training, the beginning teachers were anticipated to make improvements in their classroom decisions. The outcomes expected were the following: a. teachers will make classroom decisions based on present observed student behavior; b. teachers will consider and implement more instructional alternatives when conducting lessons; and c. teacher decisions will improve in overall quality and appropriateness.

METHOD

Subjects

Eight student teachers in the second semester of a professional teacher training program and eight novice teachers at the beginning of the same program were selected at random from 51 secondary education students in a university teacher preparation program to be given IDM training. All subjects were assigned to one of six secondary schools in a primarily rural area of northern California. Novice teachers attended 12 hours of on campus teacher preparation classes per week and observed or assisted in public school classrooms 2 days a week. Student teachers taught under supervision at least three periods a day in secondary classrooms. Eight other student teachers and eight other novices who were matched on the basis of instructor judgment of overall teaching ability served as controls.

Procedures

Introduction to decisionmaking. To learn major principles about general decisionmaking the experimental participants worked through a booklet on four concepts in instructional planning that was written by the investigator in the format of guided design (Wales & Stager, 1982). The procedure basically calls upon small groups of learners to study a problem situation and then to work cooperatively through a series of instruction and feedback sheets related to the situation in order to identify goals, gather relevant information, consider alternative actions, choose one course of action, analyze it, and design its implementation. By devising solutions to the problem situations according to the decisionmaking steps in guided design students progress through a decisionmaking process and encounter new subject matter. Because guided design is a time-consuming process, however, it was not considered to be directly suitable for use in IDM.

Initial assessment of IDM skills. In order to assess the decisionmaking skills of all the participants, an audio tape of a 7-10 minute teaching presentation made by each during the fifth week of the semester was reviewed and analyzed. Novice teachers' presentations were made to their class of peers, and student teachers' tapes were from their secondary level classrooms. The review of tapes took place on the same day as the presentation was made and was conducted using the stimulated recall method (Bloom, 1953), in which

the audio recording is assumed to stimulate accurate recollections of thoughts that occurred while teaching. Both the participant and the researcher could stop the tape at any point where either believed an interactive decision might be made. The researcher then queried the teacher in the three following areas: a. What did you see happening here? Who was doing what? b. What alternative courses of action did you consider? c. Why did you take the action you took? This interview was also recorded, and preservice teacher responses were coded in terms of whether they could identify students' behaviors that cued a decision point (rated 1 for "no" and 2 for "yes"), the number of alternatives considered, and whether action was based on present behavior or on inferred intentions and expectations (rated 0 for inference only to 3 for behavior only).

Training of IDM skills. The procedure for IDM training was conducted over the 4 weeks following the IDM assessment. Each student made four 10-15 minute teaching presentations to a class of peers or to a regular secondary class. These teaching samples were recorded on audio tape, and they were reviewed together by the student and the researcher. For those in the experimental condition the tape could be stopped by either listener at any point where a possible decision point was noted. The following questions were then asked: What is the problem here? What do you see happening? Who is doing what? What do you infer is happening or will happen? What are three alternative courses of action you could follow? Which one do you believe would be most appropriate here? Why? The researcher supplied answers to these questions the first time the tape was stopped. For the next two decision points the preservice teacher was prompted and assisted by the researcher in making replies. Thereafter, the teacher was told to answer the questions by "thinking out loud." Prompting was done only to ensure that all the questions were answered. The review of the controls' tapes consisted of a short discussion of the structure of the lesson plan after the tape had been played.

Final assessment of IDM skills. A second assessment of IDM skills of experimental and control groups was conducted during the 13th and 14th weeks. The procedure used was similar to that employed on the initial assessment except that 15-20 minute tapes were reviewed. In addition to having student responses to questions about teaching decisions subjected to the same ratings and tally as in the earlier assessment, an overall judgment of the appropriateness of interactions was given on a 5-point scale by a teacher education professor who was not aware of the treatment or the groups in which participants had been placed.

RESULTS

Results were expressed as a summary of ratings and tallies associated with the matters of identifying behavioral cues for decision points, generating alternative courses of action, carrying out actions based on present behavior, and engaging in generally appropriate interactions. Each of these issues is dealt with separately below.

Data related to the ability of preservice teachers to perceive behavioral cues for decision points revealed no significant differences among the groups

or between initial and final assessments. All groups attained a mean percentage of correct identification of cues between 86 and 95 in both assessments.

On other variables under study the IDM training appeared to have the predicted effect. Overall, experimental participants related more than twice as many teaching alternatives after training than controls at the same time in their teacher preparation program (see Table I). Results of an ANOVA performed on the number of alternatives indicated the IDM training effect was highly significant ($p < .01$). Although the consideration of an increased number of alternatives was noted in the final assessments of both novices and student teachers, it was significant only in the latter group.

TABLE I

Means and Standard Deviations for Number of Teaching Alternatives Considered per Decision Point

Group		Initial Assessment	Final Assessment
Novice, Experimental	M	1.2	2.7
	SD	.4	.8
Novice, Control	M	1.3	1.3
	SD	.3	.4
Student teacher, Experimental	M	1.4	2.9
	SD	.4	.7
Student teacher, Control	M	1.6	1.4
	SD	.5	.5

Experimental student teachers were also more likely than controls to make instructional decisions on the basis of present behavior rather than on projected behavior and inferred intentions. Their ratings of the use of present student behavior in reaching classroom decisions were revealed through ANOVA to be significantly higher ($p < .05$) than those for the control groups (see Table II). No other effects were statistically reliable.

TABLE II

Means and Standard Deviations for Ratings of the Use of Present Student Behavior in Planning Action

Group		Initial Assessment	Final Assessment
Novice, Experimental	M	.7	1.2
	SD	.3	.4
Novice, Control	M	.9	.8
	SD	.4	.3
Student teacher, Experimental	M	.6	1.4
	SD	.2	.4
Student teacher, Control	M	.7	1.0
	SD	.3	.4

An ANOVA of the overall ratings of the participants' interactions in the classroom showed that only the main effect of position in the teacher preparation program was significant ($p < .05$). The student teacher groups combined received mean ratings 38% higher than those assigned to the novice groups (see Table III). Although the ratings slightly favored the IDM training groups over the controls, the difference was not great enough to achieve statistical significance.

TABLE III

Means and Standard Deviations for Ratings of General Quality of Classroom Interactions

Group	Mean Rating	Standard Deviation
Novice, Experimental	2.7	.8
Novice, Control	2.3	.5
Student teacher, Experimental	3.8	.8
Student teacher, Control	3.2	1.0

DISCUSSION

The significant effects of the IDM training indicate that reported strategies used in decisionmaking of student teachers can be altered through a coaching technique. Although specific aspects of decisionmaking were affected, i.e., considering more alternatives and increasing attention to present student behavior, the general quality of classroom interactions was not significantly enhanced. The naive rater of the interactions may have attended to dimensions other than those that were taught. Still, quality differences were noted between student teachers who had a semester of public classroom experience and those who had minimal experience.

The effects of the trainirg in this study must be regarded with caution. The participants were schooled directly in the type of response that was the dependent variable. Because they were students who would receive recommendations from the researcher and his colleagues, they may have simply behaved like good students without internalizing the IDM strategies. Other investigators must assess whether effects observed here generalize to different personnel and teacher training programs.

Several new avenues of research in IDM training should be explored. A number of methods for training decisionmaking skills probably deserves investigation. One especially promising, though expensive, means for teaching interactive skills appears to be through the use of interactive video technology. Future research should also gather longitudinal data to ascertain the stages of teacher preparation during which IDM might be introduced most profitably. For instance, in the present study a general difference in receptivity was noted between novice and experienced student teacher groups. Classroom student teachers seemed keenly aware of the need to develop facility in making decisions on their feet, but novices appeared less aware. Finally, concern needs to be directed toward establishing valid criteria for determining the quality of teachers' interactive decisions. Making effective decisions in classrooms is certainly a more complex matter than simply looking at present behaviors and thinking of alternative plans of action. Nevertheless, these factors may be useful components in developing effective teaching behaviors.

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